

WHAT IS CLAIMED IS:

1. An opto-electronic video compression system, comprising:
a lens element for transmitting light of an image and having one or more lenses,
each lens having a predetermined focal length;
a sensor array including a first sensor for receiving focused light from the lens
element and a second sensor for receiving defocused light from the lens element, wherein the
first sensor includes $X \times Y$ pixels and samples the focused light at each of the $X \times Y$ pixels, and
the second sensor includes $X/2 \times Y/2$ pixels and samples the defocused light at each of the $X/2 \times$
 $Y/2$ pixels; and
an electronic differencing element in communication with the first and second
sensor for differencing the coefficients of co-located pixels.

2. The opto-electronic video compression system of Claim 1, wherein the lens
element includes a single lens, and further including a beam splitter between the lens element
and the sensor array for transmitting a first percentage of the light from the image to the first
sensor and a second percentage of the light from the image to the second sensor.

3. The opto-electronic video compression system of Claim 1, wherein the lens
element includes a single collimated lens, further including a beam splitter between the lens
element and the sensor array for transmitting a first percentage of the light from the image to the
first sensor and a second percentage of the light from the image to the second sensor, and further
including a first lens between the beam splitter and the first sensor for providing the focused light
on the first sensor, and a second lens between the beam splitter and the second sensor for
providing the defocused light on the second sensor.

4. The opto-electronic video compression system of Claim 1, wherein the sensor
array is a stepped array.

5. The opto-electronic video compression system of Claim 1, further including an
electronic quantizing element in communication with the electronic differencing element for

3 dividing coefficients received from the electronic differencing element by a predetermined
4 quantizer coefficient.

1 6. The opto-electronic video compression system of Claim 1, wherein the lens
2 element includes multiple lenses.

1 7. The opto-electronic video compression system of Claim 6, wherein each lens has
2 the same focal length and the sensor is a stepped sensor.

1 8. The opto-electronic video compression system of Claim 6, wherein each lens has
2 different focal lengths and the sensor is a planer sensor.

1 9. The opto-electronic video compression system of Claim 1, further including an
2 electronic quantizing element in communication with the electronic differencing element for
3 dividing coefficients received from the electronic differencing element by a predetermined
4 quantizer coefficient.

1 10. The opto-electronic video compression system of Claim 9, wherein the quantizer
2 coefficient is programmable.

1 11. The opto-electronic video compression system of Claim 9, wherein the electronic
2 quantizing element is a programmable attenuation circuit.

1 12. The opto-electronic video compression system of Claim 9, further including a
2 model in communication with the electronic quantizing element and a second electronic
3 differencing element in communication with the electronic quantizing element and the model for
4 calculating the difference between a coefficient and a co-located coefficient from the model.